

NEMO Version 2023-07-21

Release Letter

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1. Summary

As of July 21, 2023, proALPHA has released NEMO version 2023-07-21.

NEMO – standing for Natural Enterprise Management Optimizer – is a new breed of AaaS – Analytics-as-a-Service – offering from proALPHA. NEMO analyzes all sorts of event data. In particular NEMO analyzes business processes as performed with proALPHA ERP. The objective of NEMO is to enable better daily decisions by relating operational activities (input factors) with financial results (output factors).

NEMO 2023-07-21 is characterized by further rounding out “NEMO for All” (i.e. projects with arbitrary data). Among others Panels are fully functional for projects now.

In addition, NEMO version 2023-07-21 features various error corrections and performance improvements. Also, various housekeeping improvements have been implemented.

2. Application Signature Features

Natural Performance Index (NPI)

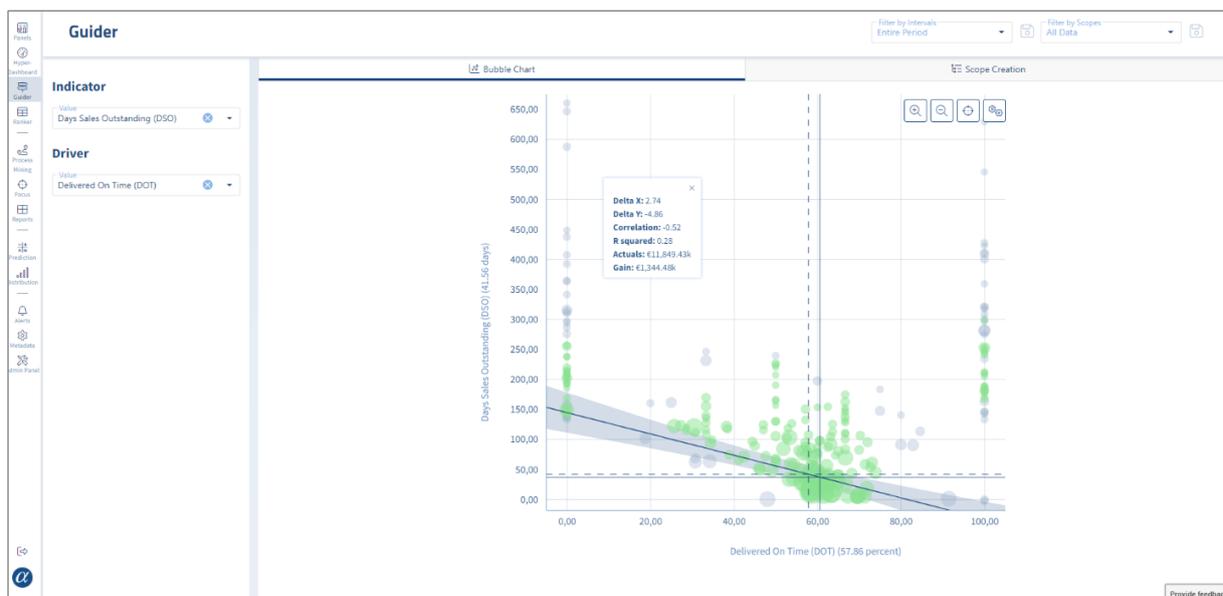
The NPI measures and ranks the fitness of a business. High NPIs indicate a significant improvement potential which is likely to be achieved. They help the user find and decide between the available optimization opportunities and are key to the daily decision support provided by NEMO.

Natural Leverage Index (NLI)

The NLI measures and ranks the degree of efficiency (“Wirkungsgrad”) of a certain operational measure. High NLIs indicate a significant leverage which is likely to be achieved. They help the user find and decide between the available opportunities and as such facilitate the daily decision support provided by NEMO.

Unsupervised Learning

Since there is no optimum for business process optimization typical machine learning approaches don't apply. Hence NEMO leverages robust advanced statistics out of the so-called space of unsupervised learning algorithms.



Meta-data Driven

NEMO is not only data- but also metadata-driven. This means that virtually all metrics and scopes can be formed – either manually or automatically.

The screenshot shows the 'Metadata' configuration page in NEMO. On the left is a navigation menu with categories like 'Alert Conditions', 'Attribute Groups', 'Exported Columns', 'Defined Columns', 'Derived Columns', and 'Metrics'. The 'Metrics' section is expanded, showing various metrics such as 'Annual Churn', 'Average Deviation Confirmation Dates', and 'Days Inventory Outstanding (DIO)'. The 'Days Inventory Outstanding (DIO)' metric is selected and its configuration is shown in the main area. It includes fields for 'Conflict State' (NoConflict), 'Display Name' (Days Inventory Outstanding (DIO)), and 'Internal Name' (d_i_o). A description explains that DIO is a measure of tied-up cash in a company's inventory. Below the description, there are fields for 'Unit' (days) and 'Optimization Orientation' (Min). A table lists columns and their aggregation functions:

Column	Aggregation
d_i_o_days	maximum
d_i_o_days_weighted	maximum
mvmmt_average_costs_total_corp_cur	maximum
part_i_d	maximum

There is also a section for 'Second aggregation' with a plus sign to add more columns.

Hyper-Dashboard

NEMO continuously ranks all business process correlations. This enables dynamic dashboards which are complementing classical dashboards.

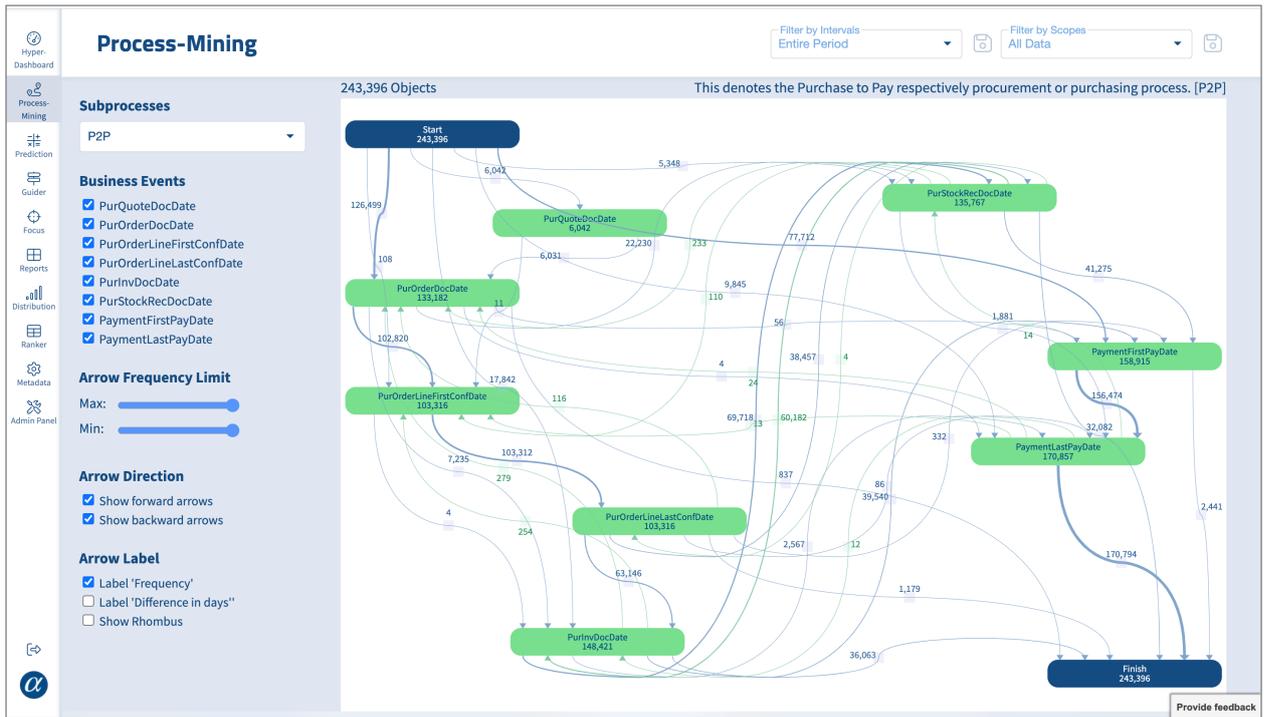
The screenshot shows the 'Hyper-Dashboard' interface. On the left, there are sections for 'Indicators' (Days Sales Outstanding (DSO)) and 'Drivers' (Delivered On Time (DOT)). The main area is titled 'Best Opportunities to optimize indicators (by improving drivers)'. It features a radar chart comparing 'Average' (light blue) and 'Target' (green) values across several dimensions. The dimensions and their values are:

Dimension	Average	Target
[[mvmmt_m_r_p_area_target: ["Produktion"]]]	56.80	51.65
[[mvmmt_m_r_p_category: ["kommissionsgesteuert"]]]	46.50	41.35
[[mvmmt_m_r_p_category: ["bedarfsgesteuert"]]]	36.21	31.06
[[part_i_d: ["10190"]]]	31.06	26.91
[[part_type: ["61"]]]	26.91	22.76
[[customer_a_b_c_classification: ["A"]]]	22.76	18.61
[[part_product_line: ["1381"]]]	18.61	14.46
[[part_i_d: ["10190"]]]	14.46	10.31

The chart also includes a legend for 'Average' and 'Target' and a 'Scope' filter set to 'All Data'.

Process Mining

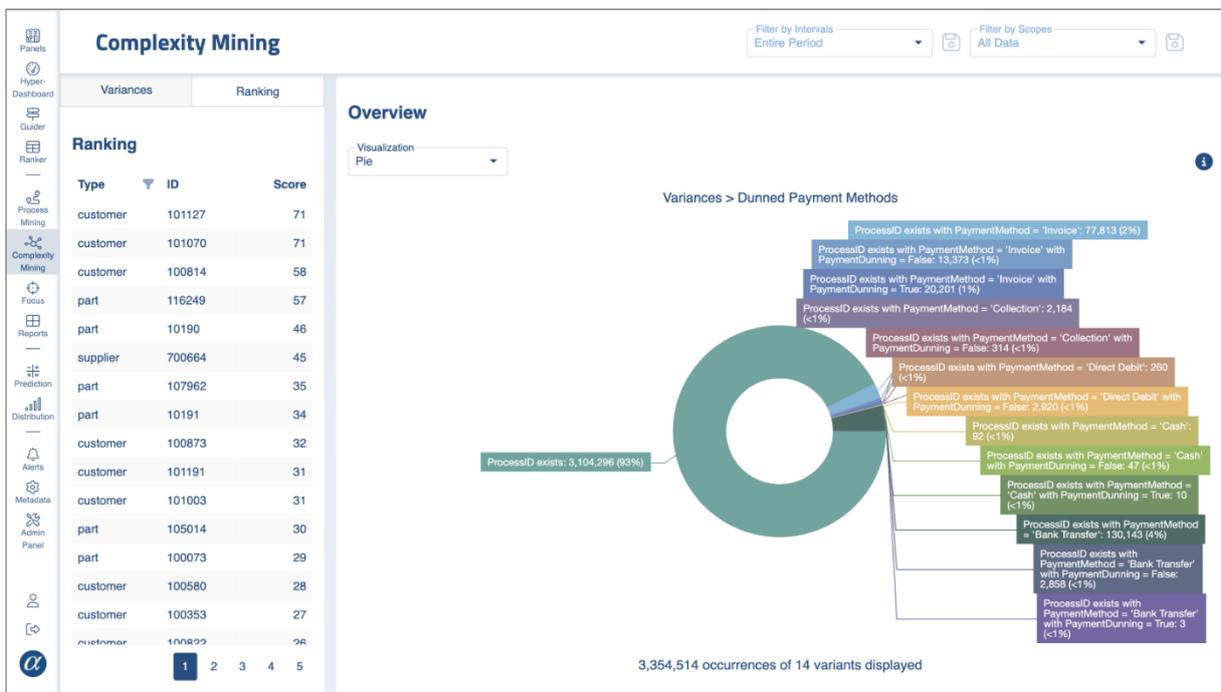
Inherently NEMO discovers all executed business processes. Process Mining visualizes these as so-called process maps. The edges (lines, links) represent business process variants. They can be captured in scopes for further analysis (e.g. Focus and Guider). The nodes (vertices, points) represent the business events which, chained up, represent the executed business activities.



Complexity Mining

Similarly, NEMO detects automatically all executed business process variants. Each and every variant increases the complexity of the respective business.

Increasing complexity increases complexity costs. This phenomenon can be analyzed as well.



All Details

NEMO works always on details. There is no need to do any pre-aggregations at all. This means that the user can drill down to the detailed business documents at any point in time and instantaneously.

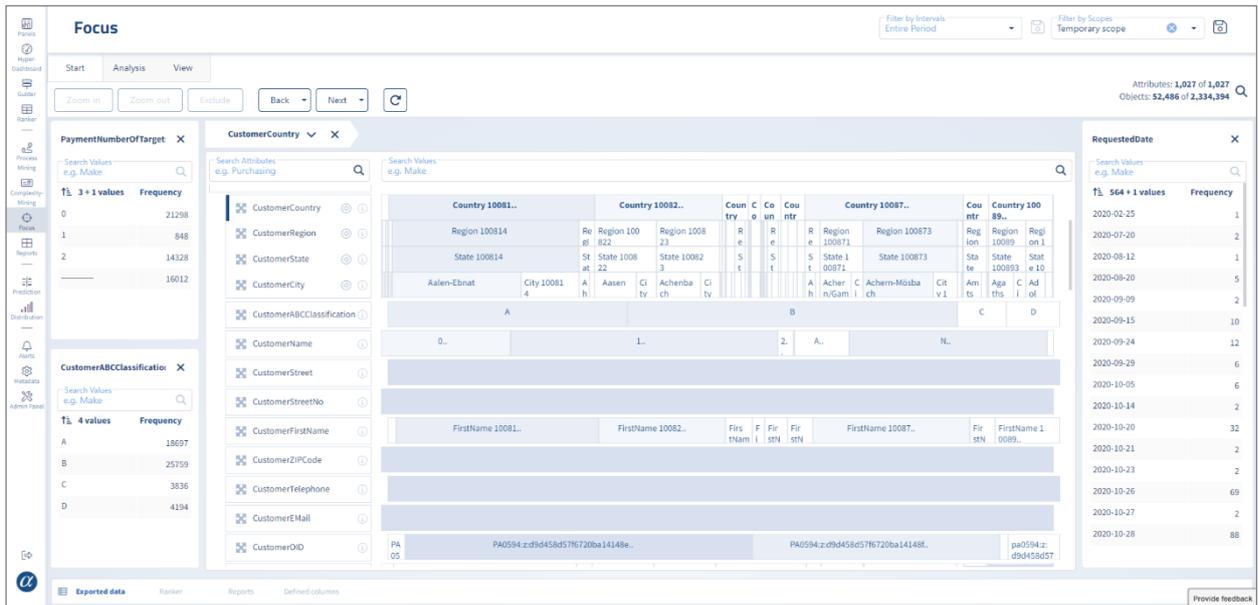
Here an example for the Payment Method Invoice. The Hyper-Dashboard provides an overview of the top measures for process improvements.



The Ranker table gives the details behind the Hyper-Dashboard.

Indicators		Best Opportunities to optimize indicators (by improving drivers)										
Days Sales Outstanding (DSO)		NPI	NLI	Driver	Driver Value	Indicator	Indicator Value	R Squared	Correlation	Actuals	Gain	Scope
Delivered On Time (DOT)		Q	Q	Q	Q	Q	Q	Q	Q	Q	Q	Q
1.228.230	150	Delivered On Tim...	49.38%	Days Sales Outst...	46.39 (days)	0.49	-0.70	€8.190.30k	€2.523.89k	[[mvmr_m_r_p_ar...		
1.045.971	140	Delivered On Tim...	47.95%	Days Sales Outst...	48.06 (days)	0.46	-0.68	€7.476.48k	€2.252.74k	[[mvmr_m_r_p_ca...		
951.839	133	Delivered On Tim...	47.78%	Days Sales Outst...	48.00 (days)	0.46	-0.68	€7.176.66k	€2.084.53k	End products		
891.949	143	Delivered On Tim...	57.14%	Days Sales Outst...	46.28 (days)	0.43	-0.66	€6.245.62k	€2.053.92k	[[customer_a_b_c...		
626.635	146	Delivered On Tim...	49.19%	Days Sales Outst...	56.78 (days)	0.53	-0.73	€4.280.45k	€1.174.27k	[[part_type[6]]]		
626.153	146	Delivered On Tim...	49.19%	Days Sales Outst...	56.80 (days)	0.53	-0.73	€4.280.45k	€1.173.68k	[[part_product_li...		
561.369	165	Delivered On Tim...	49.76%	Days Sales Outst...	53.35 (days)	0.68	-0.82	€3.405.99k	€827.81k	[[part_id[*10190...		
554.675	167	Delivered On Tim...	44.88%	Days Sales Outst...	53.40 (days)	0.49	-0.70	€3.318.21k	€1.139.90k	[[mvmr_m_r_p_ca...		
544.680	178	Delivered On Tim...	49.32%	Days Sales Outst...	58.99 (days)	0.39	-0.62	€3.057.86k	€1.410.07k	[[part_product_li...		
528.335	63	Delivered On Tim...	53.52%	Days Sales Outst...	46.12 (days)	0.30	-0.55	€8.361.60k	€1.748.98k	Storage Area 100...		
503.446	148	Delivered On Tim...	57.14%	Days Sales Outst...	58.93 (days)	0.41	-0.64	€3.407.57k	€1.231.54k	[[supplier_industr...		
439.326	197	Delivered On Tim...	39.77%	Days Sales Outst...	72.99 (days)	0.42	-0.65	€2.227.58k	€1.043.02k	[[part_id[*11177...		
389.940	130	Delivered On Tim...	47.73%	Days Sales Outst...	61.67 (days)	0.41	-0.64	€2.991.62k	€955.86k	[[part_product_li...		
388.081	157	Delivered On Tim...	38.06%	Days Sales Outst...	66.90 (days)	0.32	-0.57	€2.478.03k	€1.214.12k	[[part_product_li...		
386.742	149	Delivered On Tim...	45.28%	Days Sales Outst...	51.06 (days)	0.46	-0.68	€2.587.24k	€841.74k	[[part_type[5]]]		
320.720	204	Delivered On Tim...	36.56%	Days Sales Outst...	74.43 (days)	0.52	-0.72	€1.575.23k	€614.99k	[[part_a_b_c_class...		
265.822	22	Delivered On Tim...	57.74%	Days Sales Outst...	46.25 (days)	0.13	-0.36	€11.849.21k	€2.030.06k	[[part_a_b_c_class...		
244.851	165	Delivered On Tim...	37.20%	Days Sales Outst...	65.49 (days)	0.32	-0.57	€1.485.17k	€755.03k	[[part_id[*11177...		
231.143	320	Delivered On Tim...	52.03%	Days Sales Outst...	50.89 (days)	0.58	-0.76	€722.04k	€398.64k	[[part_a_b_c_class...		

And the Focus view gives the details behind the Ranker table. And all within seconds.



Dynamic Dashboards

From all details arbitrary dashboards can be derived as well.



Since these so-called Panels are automatically built-in conjunction with Scopes they are correct by nature.

Especially there is no dispute about the calculation of metrics and key figures anymore since those are isolated from the Panels.

Instantly Live

NEMO doesn't need any customization. Even chart-of-account or financial calendar are not needed for NEMO to function.

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3. Technology Signature Features

The NEMO technology is characterized by

- Integration
 - All applications leverage and maintain the same data
- Speed
 - Response times should be as fast as possible
 - Development times – customers or us – should be as short as possible

These objectives are achieved by leveraging following unique approaches.

Push rather than Pull Data Copying

In case of pA ERP all “NEMO for ERP” data are regularly pushed from the source system to NEMO.

For our ERP we push all essential order types now:

- Purchase Order
- Production Order
- Sales Order

This means following supply chain processes are covered now:

- Source
 - Purchasing, Procurement
- Make
 - Inventory
 - Production
- Deliver
 - Sales
- Return Handling
 - Sales
 - Purchasing
- Finance
 - Accounting Journal

Flat Data Structure

There is only one table in NEMO.

There are no aggregations (cubes) nor indices.

There are no Joins at all.

Process Chains

All data are organized along the performed business processes.

Dynamic Calculations

All calculations are performed in real-time.

There are no data preparation runs.

Metrics Driven

All control data (metadata) are available to all applications rather than being specific to a single application.

All control data are dynamically changeable – by the user or by us.

Metrics are maintained as separate entity rather than specific to each application.

In-memory Columnar Data Management

Our data are particularly suited to this mode of data management.

The resulting compression rates (easily 1:10) are very beneficial to the overall performance.

Upside-down Visualization

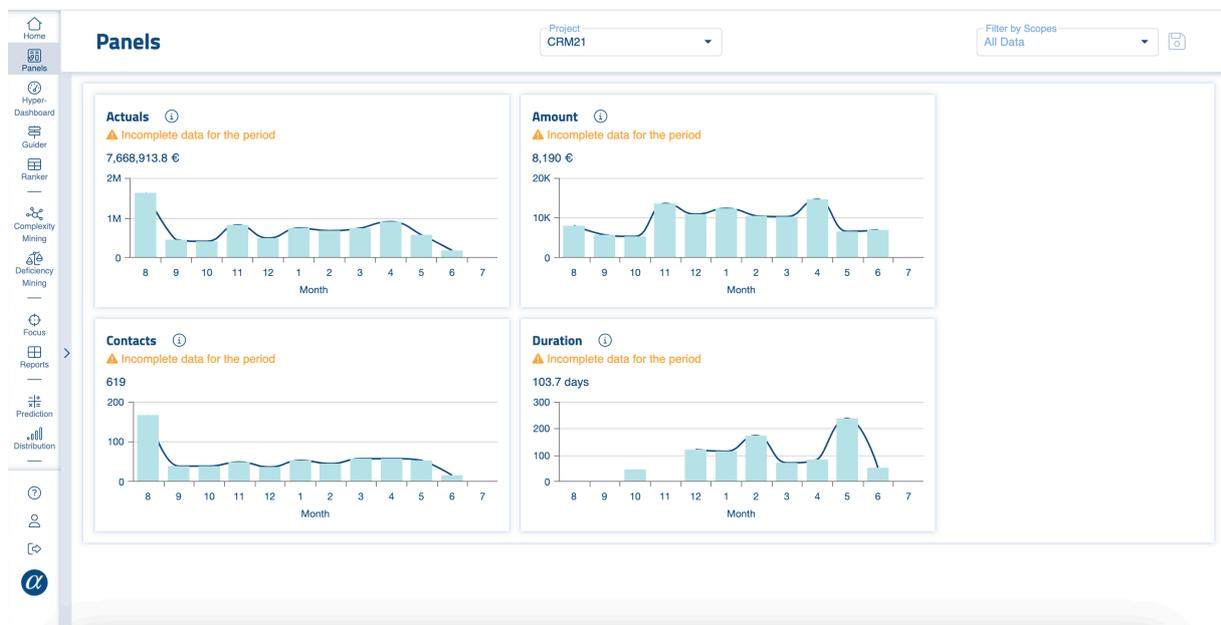
Rows and columns are inverted compared to MS Excel.

This makes patterns (e.g. populations of columns) easier to spot.

4. New and Changed Capabilities

Panels for NEMO for ALL (IMPROVED)

Here an example:



5. Newly Exported Columns

Most of the added columns have been requested by our customers. They will become available as soon as new data exports and loads have been performed. Based on these data refreshes we will research the feasibility of new default metrics. Those would become available with the next release provided they deem valuable.

Display Name	Description
CustomerSalesAgentID	Customer main sales agent #ERP-Origin: S_KundeVertreter.Vertreter
IncOrderDate	Creation date #ERP-Origin: V_Auftragseingang.Anlagedatum
IncOrderOrderType	Order type #ERP-Origin: V_Auftragseingang.Auftragsart

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IncOrderOrderTypeDesc	Order type (description) #ERP-Origin: S_AuftragsartSpr.Bezeichnung
IncOrderProfitCenter	Profit center #ERP-Origin: V_Auftragseingang.SBM_ProfitCenter_ID
IncOrderQty	Quantity #ERP-Origin: V_Auftragseingang.Menge
IncOrderQtyUnit	Unit of measure (description) #ERP-Origin: S_MengeneinheitSpr.Bezeichnung
IncOrderSpecialist	Specialist #ERP-Origin: V_Auftragseingang.Sachbearbeiter
IncOrderStatQty	Statistic quantity unit factor #ERP-Origin: S_Artikel.SME_Faktor
IncOrderThirdPartyProcess	value shows if a document is routed #ERP-Origin: V_Auftragseingang.Strecke
PartBOMCreationUser	BOM creation user #ERP-Origin: P_StkKopf.Anlagebenutzer
PartGroupStatQtyUnit	Part group statistic quantity unit #ERP-Origin: S_MengeneinheitSpr.Bezeichnung

6. Compatibility

NEMO is compatible with all ERP releases from 6.1 onwards.

NEMO is optimized for Chromium based web browsers e.g., Google Chrome or Microsoft Edge.

Functional Limitations

Following functionality is limited as of now:

- Calculations of Driver and Indicators are not based on Intervals.
- Stock movements for material withdrawals are not yet exported in Production.
- Warehouse movements for material storage are not yet exported in Production.
- The corporate currency is picked from the associated "ERP Business Processes" Project. If there is none currency calculations won't work.
- Batch Forecasting works only in Project "ERP Business Processes".

Restrictions

Following restrictions apply as of now:

- Process Mining works only in Project "ERP Business Processes" for the time being.

Component Status

- N.A.

Known Issues

- Very large temporary scopes created with Process Mining might fail in other apps.

7. Documentation

Apart from this Release Letter, further documentation is available on [NEMO Help Portal](#).

8. Availability

All production environments have been updated already.